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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,102	LE SAUZE ET AL.	
	Examiner	Art Unit	
	ANDREW LAI	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _4/30/2008_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-13_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-13_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 September 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4, 6, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Jha (US 7,006,525).

Jha discloses a “hybrid data transport scheme over optical networks” (col. 1 lines 1-2) comprising the following features.

Regarding claim 4, *a dynamic method of adding data to optical data signal at the nodes of a fiber optic transmission network* (“a method and/or architecture for hybrid data transportation”, col. 1 lines 19-20, for “sending a mix of different data types over a fiber optic network”, col. 1 lines 21-22, wherein “each node may be configured to receive and/or transmit” recited col. 7 lines 47-48, and the “invention may additionally dynamically manage bandwidth”, col. 8 lines 64-65) *comprising at least one source node, one destination node and a plurality of intermediate nodes, said nodes being connected by a fiber optic connection* (refer to fig. 10 and see “the system 100 may comprise a number of devices 102a to 102n connected to a network backbone 104” recited col. 9 lines 14-16), *said method comprising the following steps:*

a) creating at the source node an optical resource ("a single SONET SPE [synchronous payload envelope] or data-over-fiber frame", col. 12 line 1) *comprising portions containing data packets addressed to said destination node and free portions* (refer to fig. 14 wherein "a detailed block diagram of the SONET SPE 200 is shown. The SONET SPE 200 may comprise a number of packets 110a-220n and a number of empty packets 222a-222n" recited col. 13 lines 4-7) *that may be occupied by packets supplied by each of said intermediate nodes* (see "nodes on the fiber network 100 may mark different sections of the SONET SPE 200 as reusable by the other nodes 102a-102n" recited col. 13 lines 25-27),

b) when said resource transits through an intermediate node, detecting if said resource comprises free portions if said intermediate node has at least one data packet to transmit ("if a particular node detects and incoming SONET frame on a receive port, or if there is a frame in the transmit/receive queue, the node checks the frame to see if there are unused/reusable areas in the incoming/queued frame that can be used for sending data", col. 16 lines 1-5), *and*

c) adding said data packet to a free portion of the resource if said free portion may contain said data packet (see "if there is enough space available in the frame, the node fills the space with additional data before sending the frame out" recited col. 16 lines 5-7), *wherein*

said optical resource is a macropacket ("SONET SPE [synchronous payload envelope") *comprising a header* (refer to fig. 14 and see "the payload header 104a of the packet 200a" recited col. 13 lines 7-8) (see "the payload header 204a may tell what

kind of packet/protocol (such as Ethernet, PPP, IP, Frame Relay, ATM cells, T1, etc.) is inside a payload of the packet 220a" recited col. 13 lines 10-13, and see fig. 18 "check destination node addressing" block) *and data packets supplied at each of said intermediate nodes* (see "the [intermediate] node fills the space with additional data" recited col. 16 line 6); *and*

the step b) comprises determining the free portions of said macropacket by analyzing the content of said header (still refer to fig. 14 see "the payload header 204a may be used to tell whether one or more of the empty packets 222a-222n inside the SONET SPE 200 may be reused at an intermediate node", col. 13 lines 19-21).

Regarding claim 6, *wherein the step b) comprises the following steps:*

b1) converting the optical signal received by said intermediate nodes into an electronic signal bearing said macropacket signal (see "fiber optic network running SONET/SDH framing" recited col. 1 line 22, noting SONET/SDH does O/E and E/O conversion, which is also taught by Jha, see col. 11 lines 13-17),

b2) extracting the header (fig. 14 "104a-204n" showing "payload header") *of said macropacket* (fig. 14 as a whole) *and storing said data in a header buffer memory,*

b3) extracting the original data (fig. 14 "274" showing "…payload…") *from said macropacket* (fig. 14 as a whole) *and storing said data in a transit buffer memory,*

(refer to fig. 14 and see "intermediate nodes may detect these packets (e.g., the reusability bit is reset), note the offsets of these packets, and preserve the respective offsets when recreating the frame [i.e., frame shown in fig. 14] (e.g., after adding packets from local input ports) for outbound traffic" recited col. 13 lines 43-47, noting

that to perform these functions, intermediate nodes will have to *extract the header* and *the original data,* and *store* them in respective buffers, see for example “the transmit/receive queue” recited col. 16 lines 2-3, before passing the frame to downstream “outbound traffic”), *and*

b4) measuring in said transit buffer memory the absence of data signals … to determine if said macropacket comprises a free portion sufficient for addition thereto of said data packet (see “if there is a frame in the transmit/receive queue, the node checks the frame to see if there are unused areas in the queued frame that can be used for sending data. If there is enough space available in the frame, the node fills the space with additional data” recited col. 16 lines 2-6).

Regarding claim 11, *wherein the step c)* [of claim 4] *comprises transmitting over the network said data packet that was previously stored in data buffer memory* (“additional data”, see further discussion below) *if the step b) has detected absence of optical signals for a time* (“enough space available in the frame”, see further discussion below) *corresponding at least to the time of said data packet* (“if a particular node detects and incoming SONET frame on a receive port … the node checks the frame to see if there are unused/reusable areas in the incoming frame that can be used for sending data. If there is enough space available in the frame, the node fills the space with additional data before sending the frame out”, col. 16 lines 1-7, noting herein that the "enough space in the frame" corresponds to the *absence of optical signals for a time corresponding to the time of the* "additional data" because said "space" is "unused area", of which the size indicates for how long in time data is *absent* to fill up the

"space/area", and further, the "space/area" is checked to make sure it is long *enough* to fill therein the "additional data" previously stored in the "particular node”).

Regarding claims 13, *System comprising means adapted to implement the steps of the method according to claim 4*. (see fig. 10 depicting system configuration and fig. 13 depicting the principle of the method the system shown in fig. 10 implements).

Jha also discloses some features regarding the following claims:

Regarding claim 5, All of claim 6 steps from *b1)* through *b3)*, respectively identical to claim 5 steps *b1)* through *b3)*. Therefore, see discussion regarding claim 6 above about those steps. In addition, Jha also discloses the features of claim 5 step b4)

b4) analyzing the header to determine if said macropacket comprises a free portion sufficient for addition thereto of said data packet (refer to fig. 14 and see "the payload header 104a may be used to tell whether one or more of the empty packets 222a-222n [shown in fig. 14] inside the SONET SPE 200 may be reused at an intermediated node" recited col. 13 lines 19-21, and further refer to fig. 16 for details of header "204a" wherein a "packet identifier 280" shows "0000 null packet" indicating "a null packet may indicate that the payload area may be reused" recited col. 14 lines 10-11. Jha however does not disclose analyzing the header <u>by means of a state machine</u>, which will be discussed in subsequent paragraphs).

Regarding claim 7, *method according to claim 5, wherein the step c) comprises the following steps:*

c1) modifying said header stored in buffer memory as a function of said data packet to be added to the macropacket (refer to fig. 18 and see "much of the HDT [hybrid data transport] processing is generally related to processing of the header to identify the type of packet and then passing the processing of the header to identify the type of packet and then passing the starting address of data bytes to standard logic for handling the individual packet type" recited col. 15 lines 23-26),

c2) transmitting … a new macropacket comprising said modified header, said original data and said data packet that was previously stored in a data buffer memory (see "intermediate nodes may detect these packets (e.g., the reusability bit is reset), note the offsets of these packets, and preserve the respective offsets when recreating

the frame (e.g., after adding packets from local input ports) for outbound traffic" recited col. 13 lines 43-47),

c3) converting said new macropacket into an optical signal to be transmitted over the network (it is a necessary step in Jha's system since it is about a "hybrid data transport scheme over optical networks" recited col. 1 lines 1-2).

(Jha does not disclose for step c2) above that said transmitting is *under the control of said state machine*, which will be further discussed below).

Regarding claim 8, *method according to claim 5, wherein the step c) comprises the following steps:*

c1) modifying said header stored in buffer memory as a function of said data packet to be added to the macropacket (refer to fig. 18 and see "much of the HDT [hybrid data transport] processing is generally related to processing of the header to identify the type of packet and then passing the processing of the header to identify the type of packet and then passing the starting address of data bytes to standard logic for handling the individual packet type" recited col. 15 lines 23-26),

c2) deleting the original header with the aid of a switch situated upstream or downstream,

c3) constructing … a new macropacket resulting from the construction of said modified header, said original data and said data packet that was previously stored in the data buffer memory.

(refer to fig. 19 see ***a.*** step 402 "Rx (receive) packet from system", ***b.*** step 406 "create payload header", which will have to delete the original header, ***c.*** the

unnumbered step but labeled as “get offset of first available area”, ***d.*** step 410 “available length >= packet length ?”, ***e.*** out of “YES” of step 410 and “store packet. Create null SDL packet in remaining area”, and finally ***f.*** “packet in buffer ready for Tx [transmission]”).

Jha does not disclose however that step c2) is done with the help of a *delay line* and step c3) is done *under the control of said state machine* and *original data delayed by said optical delay line*, which will all be discussed further below).

Regarding claim 9, *wherein the free portions of said macropacket are simply analyzed during step b)* (of claim 4, and see discussion thereof) *which comprises:*

b1) sampling the optical signal received by said intermediate node (“Nodes on the fiber network 100 may mark different sections of the SONET SPE 200 as reusable by the other nodes”, col. 13 lines 25-27, which requires firstly the capability of *sampling the optical signal*, and see fig. 14 for an example of *sampling*) *by means of sampling coupler (OPC) to convert said* signal *into an electronic signal* (see “fiber optic network running SONET/SDH framing” recited col. 1 line 22, noting SONET/SDH does O/E and E/O conversion, which is also taught by Jha, see col. 11 lines 13-17, and see fig. 14 for an example of *sampling*),

b2) extracting the header (fig. 14 “104a-204n” showing “payload header”) *of said macropacket* (fig. 14 as a whole) *and storing said data in a header buffer memory,*

b3) analyzing the header (refer to fig. 14 and see “the payload header 104a may be used to tell whether one or more of the empty packets 222a-222n [shown in fig. 14] inside the SONET SPE 200 may be reused at an intermediated node” recited col. 13

lines 19-21, which means that the header must be analyzed in order to know such) *to determine the destination of said macropacket* (it is well known in the art that a *destination* address or identifier is stored in the header of a frame, because, in the case of Jha, "destination nodes may indicate a start of the packet inside a SONET payload. Other packets may pass through the node", col. 12 lines 5-6, which means frames/packets must carry *destination* node address/identifier to make said operation possible);

b4) to determine the maximum duration of the data packet to be added, measuring in said sampled signal portion the time for which there is absence of signals ("if a particular node detects an incoming SONET frame on a receive port, ... the node checks the frame to see if there are unused/reusable areas in the incoming frame that can be used for sending data", col. 16 lines 1-5, and <u>particularly</u>, checks "if there is enough space available in the frame, the node fills the space with additional data before sending the frame out", col. 16 lines 5-7, noting that said check "if there is <u>enough space available</u>" effectively is *measuring the time for which there is absence of signals* because the "unused area" indicates *absence of signals* and the size of the "unused area" indicates for how long there is an *absence of signals*, which then naturally is able *to determine the maximum duration of the data packet to be added*, or allows "the node fills the [corresponding] space with additional data".)

(it is noted hereby that Jha does not expressly disclose, when sampling the optical signal, only *sampling a portion* of it and *the other portion of the signal remaining*

in the optical domain, and analyzing the header *by means of a state machine*. All of these will be further discussed in subsequent sections below).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jha in view of Mestdagh et al (US 5,331,316, Mestdagh hereinafter).

Jha discloses claimed limitations in section 3 above as applied to claims 4 and partially to claims 5, 7 and 8.

Jha does not disclose some other features regarding claims 5, 7 and 8, including, <u>regarding claim 5</u>, analyzing a header by means of *a state machine*; <u>regarding claim 7</u>, transmitting data under the control of *said state machine*; and <u>regarding claim 8</u>, deleting header with the help of *said delay line*, constructing new macropacket under the control of *said state machine* and original data delayed by *said optical delay line*.

Mestdagh discloses a “communication system including allocating free signaling channels to individual substations having data to transmit” (col. 1 lines 2-4) comprising:

Regarding claim 5, analyzing a header by means of <u>*a state machine*</u> (fig. 3 the item immediately above the item labeled “D” and see “<u>a finite state machine FSM</u> which has inputs AC, DE, SB, MY, ND, WD, CO and ETC and outputs G (grant), C (check), E

(echo), R (request), S (selection) and AC (active), the latter output being fed back to the line named input AC via the delay circuit D" recited col. 7 lines 21-25).

Regarding claim 7, transmitting data under the control of _said state machine_ (fig. 3 the item immediately above the item labeled "D" and see "a finite state machine FSM which has inputs AC, DE, SB, MY, ND, WD, CO and ETC and outputs G (grant), C (check), E (echo), R (request), S (selection) and AC (active), the latter output being fed back to the line named input AC via the delay circuit D" recited col. 7 lines 21-25).

Regarding claim 8, deleting header with the help of _said delay line_, constructing new macropacket under the control of _said state machine_ and original data delayed by _said optical delay line_ (for the *delay line* part see fig. 3 the item labeled "D" in the lower middle part of the fig. and see "a delay circuit D" recited col. 7 line 20; for the *state machine part*, see fig. 3 the item immediately above the item labeled "D" and see "a finite state machine FSM which has inputs AC, DE, SB, MY, ND, WD, CO and ETC and outputs G (grant), C (check), E (echo), R (request), S (selection) and AC (active), the latter output being fed back to the line named input AC via the delay circuit D" recited col. 7 lines 21-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system/method of Jha by adding the delay line and state machine of Mestdagh to Jha in order to provide a more robust mechanism for yet "a less complex communication system of the above [optical] type, particularly by the voidance of such additional receiver and transmitter in each substation" (Mestdagh, col. 1 lines 51-53).

5. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jha in view of Tajima (US 5,723,856) and further in view of Mestdagh.

Jha discloses claimed limitations in section 2 above as applied to claim 4 and partially applied to claim 9 therein. Jha further discloses:

Jha does not expressly disclose, regarding claim 9, when sampling the optical signal, only *sampling a portion* of it *to convert said portion into an electronic signal, the other portion of the signal remaining in the optical domain*, and all features regarding claim 10.

However, sampling and converting only part or portion of an optical signal to electronic signal for various purposes while keeping other parts in optical domain is a conventionally well-known technique in the art. Tajima, for example, described such conventional technique.

Tajima discloses "an optical fiber amp repeater" (Abstract line 1) with a description of conventional optical repeaters wherein "an auxiliary signal is superimposed on a main signal" (col. 1 lines 16-17) comprising:

Regarding claim 9, when sampling the optical signal, only *sampling a portion* of it *to convert said portion into an electronic signal, the other portion of the signal remaining in the optical domain* ("the repeater takes out the auxiliary signal superimposed on the main signal from input signals, converts it into an electrical signal for processing, further converts it into an optical signal, so as to be combined with the main signal, and sends it to the transmission channel again, thereby transmitting the auxiliary signal", col. 1 lines 36-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Jha by adding Tajima's partial optical-electronic conversion of optical signals into Jha in order to provide a more robust system capable of "monitoring the operation state of a terminal unit or an optical fiber amp repeater" (Tajima, col. 1 lines 23-24).

Yet, although Jha discloses *analyzing the header*, Jha in view of Tajima does not disclose such analyzing is done *by means of a state machine.*

Mestdagh discloses a "communication system including allocating free signaling channels to individual substations having data to transmit" (col. 1 lines 2-4) comprising:

Regarding claim 9, analyzing a header by means of *a state machine* (fig. 3 the item immediately above the item labeled "D" and see "a finite state machine FSM which has inputs AC, DE, SB, MY, ND, WD, CO and ETC and outputs G (grant), C (check), E (echo), R (request), S (selection) and AC (active), the latter output being fed back to the line named input AC via the delay circuit D" recited col. 7 lines 21-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Jha by adding the tate machine of Mestdagh to Jha in order to provide a more robust mechanism for yet "a less complex communication system of the above [optical] type, particularly by the voidance of such additional receiver and transmitter in each substation" (Mestdagh, col. 1 lines 51-53).

Regarding claim 10, Jha does not but Tajima does disclose *said portion of the optical signal remaining in the optical domain* ("main signal" cited above for claim 9) *is delayed for a time corresponding to the time needed to analyze and process said*

sampled portion of the optical signal ("auxiliary signal" cited above for claim 9, which is "superimposed" on the “main signal” when coming in, noting that, as discussed for claim 9, since the conventional repeater Tajima described “takes out the auxiliary signal superimposed on the main signal from input signals, converts it into an electrical signal for processing, further converts it into an optical signal, so as to be combined with the main signal, and sends it to the transmission channel again, thereby transmitting the auxiliary signal", col. 1 lines 36-41, the “main signal” will have to be delayed by *a time corresponding to the time needed to analyze and process* the “auxiliary signal”, which has to be converted to electronic signal, processed, and converted back to optical; otherwise it would be impossible for the “auxiliary signal” to be recombined with the "main signal” again and sent out together.)

Tajima is however not explicit for delaying the “main signal” *in a delay line*.

However, using a delay line or circuit to delay signals for various purposes is a well known technique in the art. Mestdagh readily provided such (see fig. 3 the item labeled “D” in the lower middle part of the figure and see “a <u>delay circuit D</u>” recited col. 7 line 20).

6. Claims 1, 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jha in view of Quinlan (US 20020021671, Quinlan hereinafter).

Jha discloses:

Regarding claim 1, *a dynamic method of adding data to optical data signal at the nodes of a fiber optic transmission network* (“a method and/or architecture for hybrid data transportation”, col. 1 lines 19-20, for “sending a mix of different data types over a

fiber optic network", col. 1 lines 21-22, wherein "each node may be configured to receive and/or transmit" recited col. 7 lines 47-48, and the "invention may additionally dynamically manage bandwidth", col. 8 lines 64-65) *comprising at least one source node, one destination node and a plurality of intermediate nodes, said nodes being connected by a fiber optic connection* (refer to fig. 10 and see "the system 100 may comprise a number of devices 102a to 102n connected to a network backbone 104" recited col. 9 lines 14-16), *said method comprising the following steps:*

a) creating at the source node an optical resource ("a single SONET SPE [synchronous payload envelope] or data-over-fiber frame", col. 12 line 1) *comprising portions containing data packets addressed to said destination node and free portions* (refer to fig. 14 wherein "a detailed block diagram of the SONET SPE 200 is shown. The SONET SPE 200 may comprise a number of <u>packets 110a-220n</u> and a number of <u>empty packets 222a-222n</u>" recited col. 13 lines 4-7) *that may be occupied by packets supplied by each of said intermediate nodes* (see "nodes on the fiber network 100 may mark different sections of the SONET SPE 200 as reusable by the other nodes 102a-102n" recited col. 13 lines 25-27),

b) when said resource transits through an intermediate node, detecting if said resource comprises free portions if said intermediate node has at least one data packet to transmit (see "if a particular node detects and incoming SONET frame on a receive port, or if there is a frame in the transmit/receive queue, the node checks the frame to see if there are unused/reusable areas in the incoming/queued frame that can be used for sending data" recited col. 16 lines 1-5), *and*

c) adding said data packet to a free portion of the resource if said free portion may contain said data packet (see “if there is enough space available in the frame, the node fills the space with additional data before sending the frame out” recited col. 16 lines 5-7), *wherein*

the step b) comprises detecting an absence of optical signals in at least one portion of said optical resource (fig. 14 e.g. “empty or reusable space 222a” and refer to fig. 15 and see “The pay load header 204a may be used to tell whether one or more of the empty packets 222a-222n inside the DONET SPE 200 may be reused at an intermediate node” recited col. 13 lines 19-21); *and*

the step c) comprises transmitting said data packet over the network (see “recreating the frame [having empty area] (e.g., after adding packets from local input ports) for outbound traffic” recited col. 13 lines 46-47) *if the step b) detected an absence of any optical signal in said portion of said optical resource for a time corresponding at least to the time of said data packet* (see discussion for step b) above).

Regarding claim 3, *wherein the step b) comprises the following steps:*

b1) converting the optical resource received by said intermediate nodes into an electronic signal bearing said macropacket signal (see “fiber optic network running SONET/SDH framing” recited col. 1 line 22, noting SONET/SDH does O/E and E/O conversion, which is also taught by Jha, see col. 11 lines 13-17),

b2) extracting the original data from said portion of said optical resource (“if a particular node detects an incoming SONET frame on a receive port … the node checks the frame to see if there are unused/reusable areas in the incoming ... frame that can be

used for sending data", col. 16, lines 15, which requires *extracting the original data from said portion*) *converted into an electronic signal* (see discussion above regarding step b1) *and storing said data in a transit buffer memory* ("transmit/receive queue", col. 16 line 2, and see further "a particular node detects" "if there is a frame in the transmit/receive queue" and further "checks the frame to see if there are unused/reusable areas in the … queued frame that can be used for sending data." col. 16 lines 1-5, which means *storing said data in a transit buffer memory*, or "transmit/receive queue", has been done prior to said "detects/checks");

b3) detecting the absence of electronic signals if said transit buffer memory is empty (see again "a particular node detects" "if there is a frame in the transmit/receive queue" and further "checks the frame to see if there are unused/reusable areas in the … queued frame that can be used for sending data." col. 16 lines 1-5. It is noted that although Jha checks if a "queue" has *empty* or "unused" areas left by "queued frames" in stead of the whole queue or *buffer is empty* or not, the latter is only a natural result of the Jha's operation because Jha will exactly know it when all of the "queued frames" have nothing but "unused areas" therein).

Regarding claims 12, *system comprising means adapted to implement the steps of the method according to claim 1/4.* (see fig. 10 depicting system configuration and fig. 13 depicting the principle of the method the system shown in fig. 10 implements).

Although Jha disclosed, regarding step b) above, *portions of optical resource* and *detecting absence of optical signals* in said portions, Jha does not expressly disclose

that detecting absence of said signals *by measuring the power* of said portion of said optical resource.

However, detecting the presence or absence of a signal *by* detecting or *measuring the power of* signals is an old and of common sense technique in the art (and in fact in all fields involving receiving optical, electrical and/or radio signals). It comes simply naturally that when *no signal power* (or in many cases when too low *a signal power* level) is detected (as long as detector is tuned to the correct band/frequency of the signal to be received), it indicates *an absence of signal*. One example can be seen in Quinlan.

Quinlan discloses an invention for "diagnosis of link failure in a network" (Title) having "optical fibre full duplex links" ([0003] line 1) wherein "examples of link failure are, loss of light" (Abstract), noting that said "loss of light" is simply a loss or *absence of optical signals* because *signals* are carried by light in a optical fibre and a "loss" of light indicates *absence of* light and thus *absence of signals*. Also, Quinlan uses optical devices (see fig. 2) having the physical layer, B1, divided into multiple sub-layers of B1.1 – B1.4 wherein the lowest B1.1 sub-layer contains "signal detect logic". Quinlan's invention comprises:

Regarding claim 1, detecting absence of optical signals *by measuring the power of signals* ("in layer B1.1 there may be provided signal detector logic; this checks for an adequate power level on the light received from the fibre optic 20 via the transceiver", [0040] lines 1-3, which "adequate power level" is used to determine "signal detect

failure", [0052] line 7, which "failure" includes, as cited above, "loss of light" or *absence of optical signal*)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Jha by adding the signal detection method of Quinlan by detecting signal power levels to Jha in order to provide more direct and sensitive mechanism for signal detection to overcome prior art device deficiencies that "can render it difficult to isolate faults when failure occurs" (Quinlan, [0013] last two lines) because "such devices do not necessarily reflect the true state of the link nodes" (Quinlan, [0014] lines 4-5).

Regarding claim 2, Jha discloses substantially most features thereof, including:

wherein the optical signals received by said intermediate node are delayed by a delay line for a time corresponding to the time needed to analyze and process said optical resource (this is an inevitable and natural outcome in Jha's system because, as disclosed therein, an intermediate node receives a SPE, adding the node's own data to the empty space, if any, in the SPE, and then passes SPE along to the next node. Jha however does not disclose *delayed by <u>a delay line</u>,* which will be discussed further below in subsequent sections)

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jha in view of Quinlan, as applied to claim 1 and partially to claim 2 above, and further in view of Mestdagh.

Jha in view of Quinlan discloses claimed limitations discussed in section 6 above.

Jha in view of Quinlan does not disclose said delay is *delayed by a delay line*, which is however disclosed by Mestdagh (fig. 3 the item labeled “D” in the lower middle part of the figure and see “a delay circuit D” recited col. 7 line 20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the system/method of Jha by adding the delay line of Mestdach to Jha in order to provide a more robust mechanism for yet “a less complex communication system of the above [optical] type, particularly by the voidance of such additional receiver and transmitter in each substation” (Mestdagh, col. 1 lines 51-53).

Response to Arguments

8. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argument regarding claim 1 is on the issue of how empty packet is detected in Jha in view of the newly added limitation to claim 1 of "by measuring the power of said portion of said optical resource”. Applicant argues (Remarks page 12 third paragraph), “Jha does not teach or suggest that the empty packet is detected by measuring the power of the space allocated to the packet”.

Newly found reference of Quinlan clearly teaches such, see section 6 above for details, which renders the argument moot.

9. Applicant's arguments filed on 4/30/2008 over claim 4 have been fully considered but they are not persuasive.

Applicant argues (Remarks page 13 second paragraph) “Jha does not teach or suggest that the empty packet is detected by analyzing the content of the header of a macropacket”.

Examiner respectfully disagrees.

Much to the contrary, Jha clearly disclosed such by stating “the payload header 204a may be used to tell whether one or more of the empty packets 222a-222n inside the SONET SPE 200 may be reused at an intermediate node” (col. 13 lines 19-21).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW LAI whose telephone number is (571)272-9741. The examiner can normally be reached on M-F 7:30-5:00 EST, Off alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Andrew Lai/
Examiner, Art Unit 2616

/Kwang B. Yao/
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